

# PRODUCT STEWARDSHIP

for  
MERCURY LIGHTS

Kara J. Steward  
Waste 2 Resources  
Ecology



# Mercury Products



Product	Amount of Mercury
Compact fluorescent bulb	3-5 milligrams
Watch battery	25 milligrams
Dental amalgams	500 milligrams
Home thermometer	500 mg – 2 grams
Float switches in sump pumps	2 grams
Tilt thermostat	3 grams



# Mercury Lights



- More efficient
- Longer lasting
- Lower power demand
- Cheaper than LED
- Incandescent “ban”

**Don't throw them in the trash!**

## How they stack up

A compact **fluorescent bulb** activates phosphor to produce light. A phosphor coating inside the lamp gives off light when it is exposed to ultraviolet radiation. The bulb doesn't use heat to create light, which makes it more energy efficient.

**Regular (incandescent) bulbs** produce light by heating a filament inside the bulb. Electric current passes through the filament, heating it to the point that it becomes white-hot and emits light. Most of the electric energy incandescent bulbs use is converted into heat.



**COMPACT FLUORESCENT**  
(23 watt)

Average life:  
10,000 hours

Cost:  
\$11

Comparable lighting:  
1,500 lumens

### THREE-YEAR COST COMPARISON

Electricity cost\*: \$8.06

Bulb cost: \$11  
(1 bulb for 6.8 years)

Total cost: \$19.06

**INCANDESCENT**  
(100 watt)

750 hours

75 cents

1,690 lumens



*\*At 8 cents/kilowatt-hour, four hours burned per day*



**Table 1: Mercury Use in Lamps Sold by NEMA Companies in 2004**

Lamp Type	Amount of Mercury in Lamp (mg)	Percent of Lamps with Specified Mercury Amount
Fluorescent	0 - 5	12
	> 5 - 10	48.5
	> 10 - 50	27
	> 50 - 100	12.5
CFL	0 - 5	66
	> 5 - 10	30
	>10 - 50	4
Metal Halide (MH)	>10 - 50	24
	> 50 - 100	40
	> 100 - 1,000	35
Ceramic Metal Halide	0 - 5	17.6
	> 5 - 10	46.8
	> 10 - 50	35.6
High Pressure Sodium	>10 - 50	97
Mercury Vapor	>10 - 50	58
	> 50 - 100	29
	> 100 - 1,000	12
Mercury Short-Arc	> 100 - 1,000	65
	> 1,000	23
Mercury Capillary	> 100 - 1,000	100





# What's the Worry?



- Fluorescent tubes = 5-10 mg Hg
  - Estimated 1,300 million tubes sold in US each year = 13,000 kg mercury (14 tons)
- CFL = 3-5 mg Hg
  - Estimated 300 million CFLs sold in US each year = 1,500 kg mercury (1.6 tons)
- Mercury from one broken CFL
  - Releases 200–800  $\mu\text{g}/\text{m}^3$  mercury
  - Contaminate 1,000 gallons of water



The Freedonia Group 2009

[www.ecy.wa.gov/mercury/mercury\\_bulb\\_cleanup.html](http://www.ecy.wa.gov/mercury/mercury_bulb_cleanup.html)

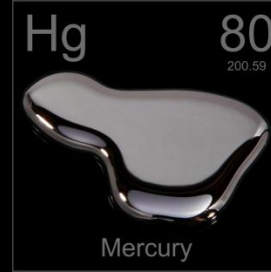


# What's the worry?





# Mercury Lights in the U.S.



## ■ Massachusetts (2006) MassDEP

- Producers educate consumers
- Collection/drop off locations
- Meet annual recycling goal

## ■ Maine (2011)

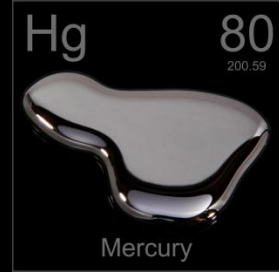


- Product stewardship program
- Uses existing collection sites
- Free transport and recycling





# Mercury Light Takeback



**Lightly** energy newsletter



- Local government, collection events, curbside, utility
- State agencies recycle mercury lights
- Take Back Programs
  - Earth911.com
  - 1-800-RECYCLE



**STATE OF WASHINGTON  
OFFICE OF THE GOVERNOR**

P.O. Box 40002 · Olympia, Washington 98504-0002 · (360) 902-4111 · [www.governor.wa.gov](http://www.governor.wa.gov)

**GOVERNOR'S DIRECTIVE No. 04-01**

**TO:** Statewide Elected Officials  
State Agency Directors  
Presidents of Higher Education Institutions  
State Boards and Commissions

**FROM:** Gary Locke, Governor

**DATE:** January 28, 2004

**SUBJECT:** Recycling Fluorescent Bulbs





# Mercury Light Takeback



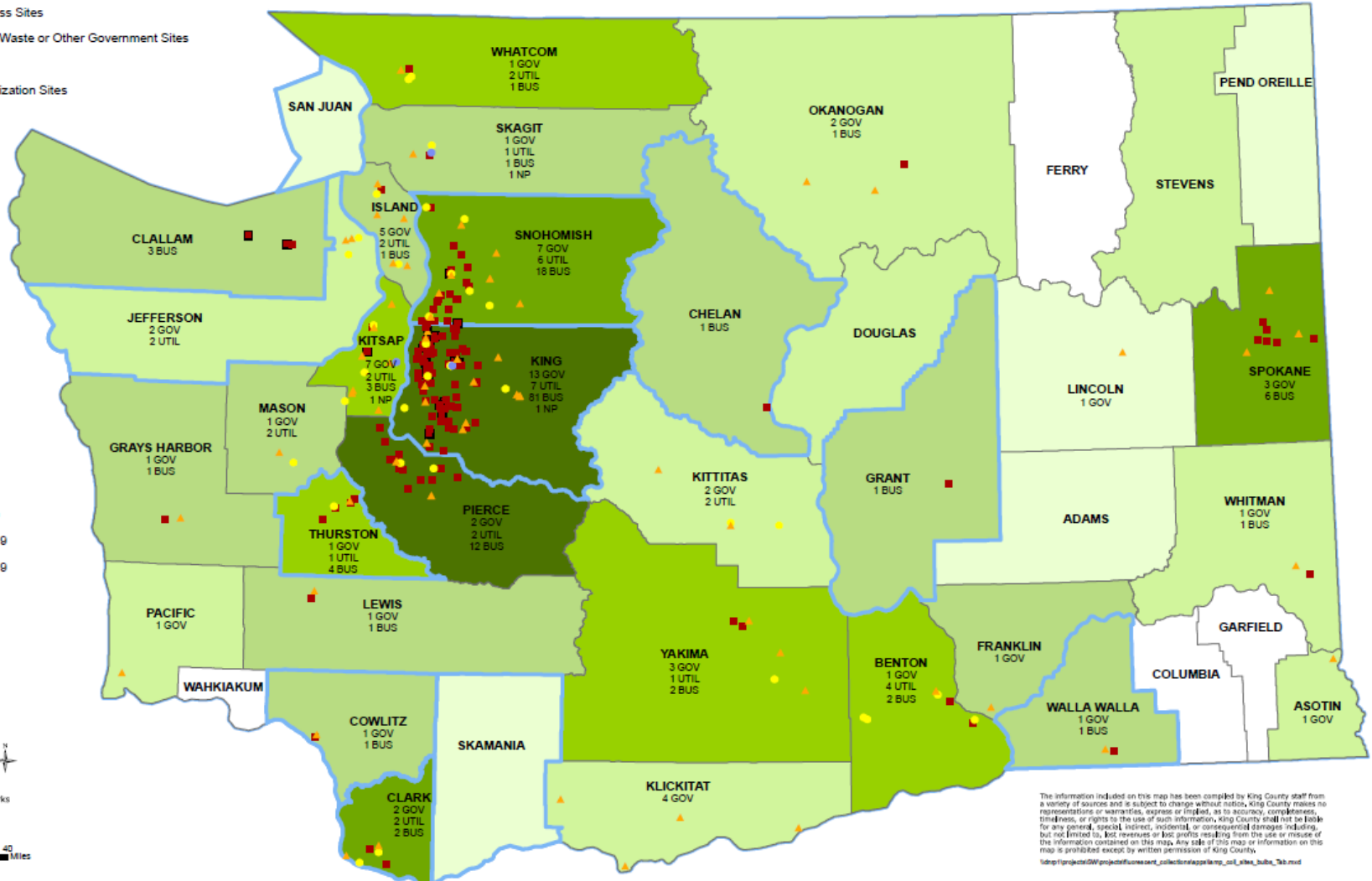
## Fluorescent Lighting Collection Sites Accepting Compact Fluorescent Lights (CFLs) from Residents County Populations Indicated By Shading

Counties with Collection Events accepting CFLs and other Hazardous Products (most events occur 1-4 times per year, with more frequent events in Clark and King County)

- 144 Private Business Sites
- ▲ 66 Municipal Solid Waste or Other Government Sites
- 36 Utility Sites
- 3 Non-Profit Organization Sites
- = Charge A Fee

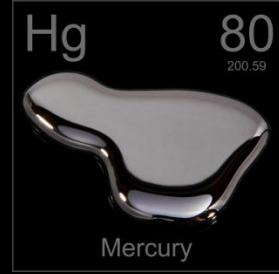
### 2008 Population

- 0 - 10,000
- 10,001 - 20,000
- 20,001 - 49,999
- 50,000 - 149,999
- 150,000 - 399,999
- 400,000 - 749,999
- > 750,000





# WA Mercury Lights Law



## Product Stewardship Program

- “Producers” = sell in or into WA
- Finance the program, including
  - Collection
  - Transportation
  - Recycling
  - Public education
  - Ecology oversight
- Program starts January 2013

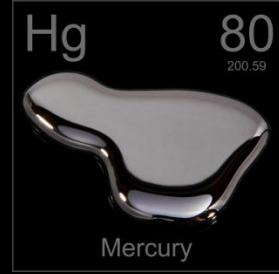


**Disposal Ban Jan 2013**

RCW 70.275



# WA Mercury Lights Law



## Product Stewardship Program

- “Convenient” collection
  - Every county
  - Every city >10,000
- Residential lights from anyone
- No charge for drop off
- Limited to 15 lights in 90 days
- Other options
  - Mail-back program
  - Curbside collection



**Disposal Ban Jan 2013**

RCW 70.275



# WA Mercury Lights Law



## What Ecology is working on...

- Collect producer fees
- Plan content guidelines
- Approve Producer Plan(s)
- Register producers & collectors
- Work with stakeholders (**that's you!**)



## Get the word out:

websites, newsletters,  
meetings, presentations





# What can you do?



## Sign up on the Listserv

Access Washington® **listserv.wa.gov**

Subscriber's Corner Email Lists

**ECOLOGY-MERCURY-CONTAINING-LIGHT List**

**ECOLOGY-MERCURY-CONTAINING-LIGHT@LISTSERV.WA.GOV**

Information about Ecology's Mercury-Containing Lights Product Stewardship progra

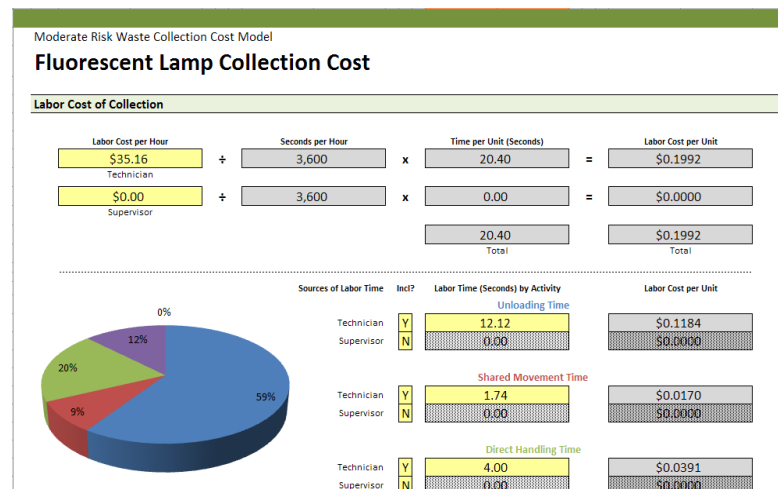
Options: [Log In](#) | [Get Password](#)  
[Join or Leave ECOLOGY-MERCURY-CONTAINING-LIGHT \(or change settings\)](#)

## Review Plan Guidelines

**A PROGRAM FOR THE COLLECTION AND RECYCLING  
OF MERCURY- CONTAINING LAMPS USED IN MAINE  
HOUSEHOLDS  
(Final)**

*SUBMITTED ON BEHALF OF CERTAIN  
MANUFACTURERS OF MERCURY-CONTAINING LAMPS  
SOLD FOR HOUSEHOLD USE IN MAINE  
PURSUANT TO 38 M.R.S. §1672*

## Estimate collection costs



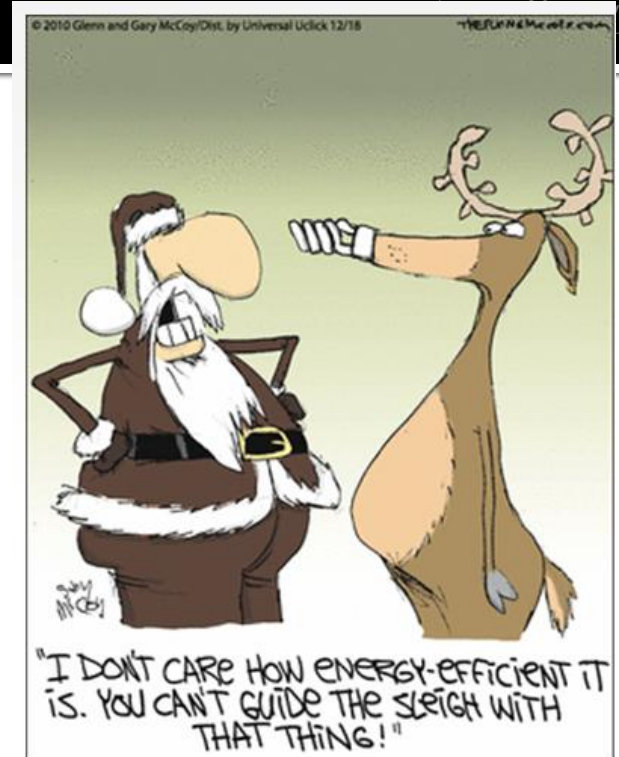


# Questions?



Kara Steward

- 360-407-6250
- [kara.steward@ecy.wa.gov](mailto:kara.steward@ecy.wa.gov)



Mercury Lights Product Stewardship Website

[www.ecy.wa.gov/programs/swfa/mercurylights/](http://www.ecy.wa.gov/programs/swfa/mercurylights/)